

August 8, 2014

Mr. Jeff Lippert
On-Scene Coordinator
U.S. Environmental Protection Agency Region 5
9311 Groh Road
Grosse Ile, MI 48318

**Subject: Removal Letter Report for St. Clair Shores PCB Drain Removal #2
EPA Contract No. EP-S5-13-01
Technical Direction Document No. S05-0001-1404-013
Document Tracking No. 0028**

Dear Mr. Lippert:

Under Superfund Technical Assessment and Response Team (START) Contract No. EP-S5-13-01, the U.S. Environmental Protection Agency (EPA) tasked Tetra Tech, Inc. (Tetra Tech) to provide oversight and technical support for removal action activities at the St. Clair Shores PCB Drain Removal #2 site in St. Clair Shores, Macomb County, Michigan. Specifically, under Technical Direction Document No. S05-0001-1404-013, EPA requested that Tetra Tech perform the following services:

- Provide written and photographic documentation of site area conditions and activities
- Manage site files and information
- Provide technical support to the EPA On-Scene Coordinator (OSC)
- Perform oversight of activities conducted at and surrounding the site by the Emergency and Rapid Response Services (ERRS) contractor, including the following:
 - Setup of exclusion zone and contamination reduction zone (CRZ)
 - Excavation of residential soil containing elevated levels of polychlorinated biphenyls (PCB)
 - Backfilling and final grading of excavated areas
 - Restoration of vegetation to excavated areas
- Perform verification sampling during excavation operations
- Conduct perimeter air monitoring and sampling

EPA conducted the removal action to prevent human exposure to elevated levels of PCBs in surface soil at residential properties. The removal action began on May 27, 2014, and was completed on July 10, 2014.

This letter report describes the site, summarizes the site's history and previous site

investigations, discusses removal action activities, and presents conclusions drawn based on the removal action. Enclosures A and B provide the figures and tables, respectively, for this letter report. Enclosure C provides photographic documentation of site conditions and removal action activities. Enclosure D provides verification report and analytical data for samples collected during the removal action.

SITE DESCRIPTION

The site is located near the intersection of Harper Avenue and Lakeland Street in St. Clair Shores, Macomb County, Michigan (Figure 1). The geographical coordinates of the site are latitude 42°29'12" North and longitude -82°53'56" West. The site is located in a residential neighborhood with one commercial property at the northeast corner of Harper Avenue and Lakeland Street.

The site consists of a total of ten properties: nine residential and one commercial (Figure 2). PCBs were found in the soil at or near the ground's surface on all 10 properties. Samples collected from the commercial and residential properties showed levels of PCBs above the Removal Management Level (RML) of 22 parts per million (ppm) for Aroclor 1248 and the RML of 3.4 ppm for Aroclor 1254.

SITE HISTORY

Over the past 9 years, Michigan Department of Environmental Quality (MDEQ), Macomb County Public Works Office (MCPWO), City of St. Clair Shores, Macomb County Health Department, and EPA's Removal Response staff have done extensive cleanup activities, responded to residents' concerns, and conducted investigations at the site. EPA's work at the Ten-Mile Drain Site (St. Clair Shores PCB Drain) was moved from the removal branch to the remedial branch of EPA Superfund to find the source(s) of PCB contamination in the underground storm sewer drain system.

In September 2013, the Ten-Mile Drain site was placed on the National Priorities List (NPL). The NPL is a roster of the nation's hazardous waste sites eligible for investigation and cleanup under EPA's Superfund program.

In 2014, the remedial branch requested support from the removal branch to address the soils above the RML's that were an immediate threat.

REMOVAL ACTION ACTIVITIES

On-site removal action activities began on May 27, 2014, and were completed on July 10, 2014. The activities completed as part of this removal action included the following:

- Development and implementation of a site-specific work plan, health and safety plan (HASP), and sampling and analysis plan (SAP)
- Initial site setup and construction of an exclusion zone and CRZ
- Perimeter air monitoring and collection of perimeter air samples

- Excavation and verification sampling of residential soil
- Backfilling of excavations and regrading of residential properties to original or improved grades
- Application of sod and installation of trees to excavated areas and planting of new trees
- Implementation of site security measures and demobilization from site

Each activity is discussed in more detail below. Enclosure C provides photographic documentation of site conditions and removal action activities. Enclosure D provides analytical results for soil and air samples collected during the removal action.

Development and Implementation of Work Plan, HASP, and SAP

The ERRS contractor, Environmental Restoration (ER), developed a site-specific work plan dated May 2014. The work plan details the scope of work and objectives of the time-critical removal action. In addition, the ERRS contractor developed a site-specific HASP dated May 12, 2014. The HASP details site-related hazards and identifies health and safety protocols for each task to be performed during the removal action. The HASP also describes proper personal protective equipment (PPE) to be used on a task-by-task basis and during emergency procedures.

Tetra Tech developed the site-specific SAP dated May 27, 2014. The SAP identifies site-related contaminants of concern, sampling equipment, and techniques. All documents are available in the site files.

Initial Site Setup and Construction of Exclusion Zone and CRZ

On May 27, 2014, EPA, Tetra Tech, and ERRS personnel mobilized to the site to initiate the removal action. A command post was set up in an open lot near the intersection of Martin Road and Jefferson Avenue. The command post housed trailers, support supplies, personal vehicles, and heavy equipment when not in use. The ERRS contractor set up two office trailers, one for EPA and Tetra Tech START personnel and the other one for ERRS contractor personnel. The ERRS contractor procured a local electrician to connect power to the trailers using a large, on-site diesel generator.

Before work began, the ERRS contractor designated the boundaries for the exclusion zone, CRZ, and command post. The exclusion zone included all areas where removal action activities would occur. The CRZ contained receptacles for the disposal of PPE used during removal action activities and break area. In addition, on- and off-site emergency rally points, several locations for fire extinguishers, and an emergency eyewash and first aid station were established.

Perimeter Air Monitoring and Perimeter Sample Collection

Tetra Tech conducted perimeter air monitoring during periods of active excavation around the exclusion zone as defined in the site-specific HASP. Air monitoring was conducted in Level D PPE. Each day (weather permitting), a Thermo Scientific DataRAM 4000 (DR4) particulate monitor was positioned at a downwind location around the excavation activities. The DR4 monitors measured dust emissions in real time. Table A below summarizes the results of air

monitoring conducted during removal action activities at the site.

The particulate dust action level was 3,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) above background. Visible dust emissions during excavation activities were rare. Particulate dust time weighted average (TWA) readings ranged from 2.33 to 73.4 $\mu\text{g}/\text{m}^3$ during the removal action activities and are summarized in the below table. All air monitoring data can be found in the site file.

Table A
Air Monitoring Summary Table

Date	Time-Weighted Average ($\mu\text{g}/\text{m}^3$)
05/27/14	10.65645
05/28/14	22.86908
05/29/14	6.965405
05/30/14	8.367796
06/02/14 (First Run)	24.47372
06/02/14 (Second Run)	19.49669
06/03/14	10.34525
06/04/14	9.233969
06/05/14	2.330971
06/06/14	3.150577
06/09/14	6.528057
06/10/14	9.350206
06/12/14	34.11618
06/13/14	4.661844
06/16/14	7.140102
06/17/14	25.77426
06/20/14	6.687396
06/23/14	10.32615
06/25/14	5.471347
06/26/14	6.943701
06/27/14	10.70596
06/11/14 (First Run)	23.69387
06/11/14 (Second Run)	9.805636
06/19/14 (First Run)	73.39927
06/19/14 (Second Run)	23.38025
06/24/14 (First Run)	31.9472
06/24/14 (Second Run)	35.78522

Note: $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

Site perimeter air samples were collected during active excavation activities on May 30, 2014. Two air sample cassettes were collected (up and down): one from an upwind location and one from a downwind location. Tetra Tech relinquished the air sample

cassettes to ER, who shipped the samples following chain-of-custody protocols to Brighton Analytical in Brighton, Michigan, for laboratory analysis of PCBs. Analytical results for these samples indicated that PCBs were not detected in perimeter air samples, and air concentrations were below 1.0 ug/m3 based on laboratory reporting limits. Enclosure 4 provides the air sample data.

Removal of Trees, Excavation and Verification Sampling of Residential Soil

Prior to excavation, ER and a subcontractor, removed trees within the excavation areas to gain access to the soils. A total of 25 trees (11 maples on the right of ways and 14 pines on the private property) were removed.

Results from sampling and analysis conducted by EPA's Remedial Branch were used to determine whether or not site properties required excavation. Figure 2 in Enclosure A provides a site map indicating the properties that required excavation. Residential soils containing PCBs were excavated to various depths depending on the extent of contamination. Excavation activities were conducted in modified Level D PPE that included Tyvek suits, rubber booties, and nitrile gloves.

Verification samples at the bottom of each excavation were collected and submitted to Brighton Analytical for PCB analysis. Samples consisted of a 5-point composite from each property. At three properties, more than one grid sample was collected to determine whether further excavation was warranted. Disposable sampling equipment was used and properly disposed of.

Tetra Tech relinquished the soil samples to ER, who shipped the samples following chain-of-custody procedures to Brighton Analytical in Brighton, Michigan, for laboratory analysis of PCBs. Table 1 in Enclosure B provides a summary of the excavation depths and final sampling results for each property and/or grid.

Excavation was conducted using multiple excavators based on access to the area. Excavated soil was both stockpiled and directly loaded based on the property location. Stockpiled soil was located at the back of [REDACTED] Harper Ave and was loaded out on a daily basis. In the event soil was left for the next day, piles were covered with plastic sheeting. PCB-contaminated soils removed from Toxic Substances Control Act (TSCA) properties, greater than 50 ppm ([REDACTED] Harper, [REDACTED] Lakeland, and [REDACTED] Lakeland) were shipped for disposal to Wayne Disposal in Belleville, Michigan. Non-TSCA – Non-Regulated soils, less than 50ppm removed from the remaining properties ([REDACTED] and [REDACTED] Lakeland) were shipped to Woodland Meadows in Wayne, Michigan. Table 2 in Enclosure B provides a disposal summary, including waste description, date, quantity, and manifest number. Approximately 1,504 tons of contaminated soil (1,087 tons TSCA and 416 tons non-TSCA) was disposed of off-site.

Backfilling of Excavations and Regrading of Residential Properties

Excavations at each property were backfilled with common fill and topsoil to return the yards to their original grade. One fill sample, from Sterling Topsoil Sterling Heights, Michigan, was



collected prior to backfilling properties to verify clean material was being placed on site. The sample was submitted to Brighton Analytical on June 5, 2014, and was analyzed for PCBs, metals, pH, and flashpoint. All results were non-detect or below MDEQ criteria.

Approximately 1,500 tons of common fill and topsoil were used to restore the properties. In areas where excavation extended more than 1 foot below ground surface (bgs), common fill was placed using a skid steer to near grade, and then topsoil was used to complete the grade. In areas where excavation extended to less than 1 foot bgs, only topsoil was placed by skid steer to complete the grade.

Application of Sod and Installation of Trees to Excavated Areas

After excavation, backfill, and final grading at each property, sod was applied to the ground surface to restore vegetated areas to their original state. New trees were planted on properties where trees were removed during excavation, and mulch was added around the base of the trees. Proper watering schedules were provided to each property owner to ensure the health of both sod and trees.

Demobilization from Site

On July 10, 2014, the removal action was completed. ERRS personnel removed all support equipment, and all personnel were demobilized.

CONCLUSIONS

The risk of direct contact between the general public and elevated levels of PCBs in surface soil has been removed from properties along Lakeland Street and Harper Avenue as required. Properties were sampled for PCBs once desired excavation depths were reached. All of the PCB results were below the RMLs of 22 ppm for Aroclor 1248 and 3.4 ppm for Aroclor 1254. The affected properties were excavated to various depths ranging from 6 to 40 inches, backfilled with new fill and topsoil, regraded to original or improved grades, and sodded and replanted with trees where necessary.

If you have any questions on the removal action activities completed at this site or require additional information, please contact me at (586) 524-0613.

Sincerely,

A handwritten signature in cursive script that reads 'Lori A. Kozel'.

Lori Kozel
Tetra Tech Project Manager



Enclosures (4):

A – Figures

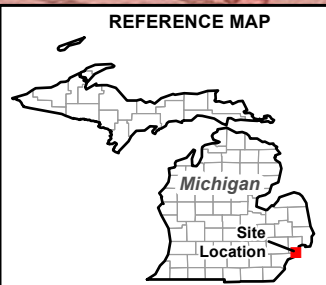
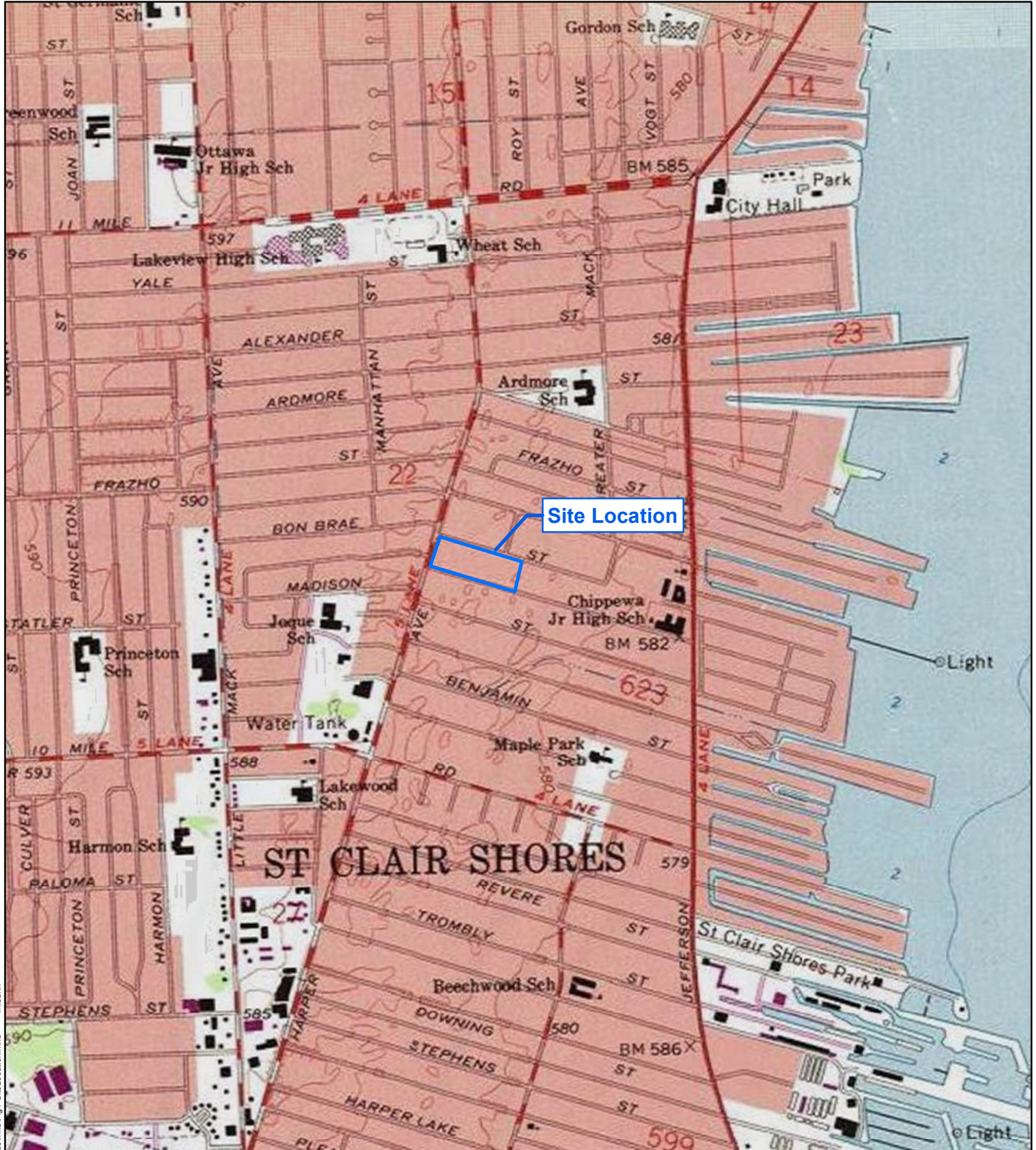
B – Tables

C – Photographic Documentation

D –Analytical Data



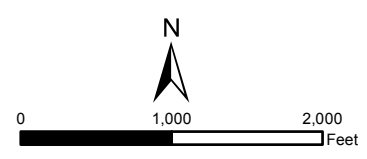
ENCLOSURE A
Figures



ST. CLAIR SHORES PCB DRAIN REMOVAL #2
MACOMB COUNTY, MICHIGAN



FIGURE 1
SITE LOCATION MAP

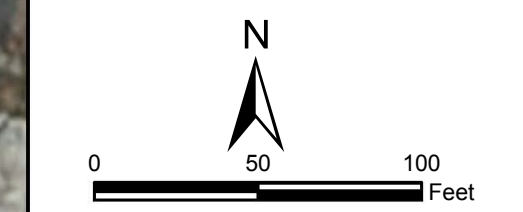




Legend

- Boundary of site properties
- Excavation areas within each property (letters indicate multiple areas within one property)

All polychlorinated biphenyl (PCB) results are presented in parts per million (ppm).



ST. CLAIR SHORES PCB DRAIN REMOVAL #2
MACOMB COUNTY, MICHIGAN



FIGURE 2
SITE LAYOUT
AND VERIFICATION
SAMPLE RESULTS



ENCLOSURE B
Tables

Table 1
Excavation Summary
St. Clair Shores PCB Drain Removal #2 Site

Address		Grid	Final excavation depth (inches)	Final Sample Result (ppm) Total PCBS
[REDACTED] Harper		A	24	Non-detect
		B	24	Non-detect
		C	40	0.48
		D	40	Non-detect
		E	40	Non-detect
		F	30	0.35
		G	18	Non-detect
[REDACTED] Lakeland		A	24	0.76
		B	24	Non-detect
		C	36	Non-detect
		D	24	1.7
[REDACTED]	Lakeland	NA	36	0.47
[REDACTED]	Lakeland	NA	24	Non-detect
[REDACTED]	Lakeland	NA	12	Non-detect
[REDACTED]	Lakeland	NA	12	0.42
[REDACTED]	Lakeland	NA	12	Non-detect
[REDACTED]	Lakeland	NA	6	2
[REDACTED]	Lakeland	NA	12	Non-detect
[REDACTED] Lakeland		A	12	Non-detect
		B	12	Non-detect

Notes:

NA - Not applicable

PCBs - polychlorinated biphenyls

ppm - parts per million

The highest laboratory reporting limit for non-detect results was 0.33 ppm.

Table 2
Manifest Tracking Table
St. Clair Shores PCB Drain Removal #2 Site

Date	Waste Stream	Medium	Quantity (tons)	Manifest Number	Disposal
06/02/14	PCB-Contaminated	Soil	24.35	13274707	Wayne Disposal
06/02/14	PCB-Contaminated	Soil	26.93	13274708	Wayne Disposal
06/02/14	PCB-Contaminated	Soil	21.55	13274709	Wayne Disposal
06/02/14	PCB-Contaminated	Soil	27.2	13274710	Wayne Disposal
06/03/14	PCB-Contaminated	Soil	29.14	13274711	Wayne Disposal
06/03/14	PCB-Contaminated	Soil	27.11	13274712	Wayne Disposal
06/03/14	PCB-Contaminated	Soil	26.23	13274713	Wayne Disposal
06/04/14	PCB-Contaminated	Soil	26.17	13274714	Wayne Disposal
06/04/14	PCB-Contaminated	Soil	22.44	13274715	Wayne Disposal
06/04/14	PCB-Contaminated	Soil	26.21	13274716	Wayne Disposal
06/04/14	PCB-Contaminated	Soil	23.9	13274717	Wayne Disposal
06/04/14	PCB-Contaminated	Soil	25.73	13274718	Wayne Disposal
06/05/14	PCB-Contaminated	Soil	27.91	13274698	Wayne Disposal
06/05/14	PCB-Contaminated	Soil	25.84	13274697	Wayne Disposal
06/05/14	PCB-Contaminated	Soil	27.52	13274696	Wayne Disposal
06/06/14	PCB-Contaminated	Soil	23.56	13274699	Wayne Disposal
06/06/14	PCB-Contaminated	Soil	23.92	13274700	Wayne Disposal
06/06/14	PCB-Contaminated	Soil	28.68	13274701	Wayne Disposal
06/06/14	PCB-Contaminated	Soil	25.69	13274702	Wayne Disposal
06/09/14	PCB-Contaminated	Soil	31.08	13274703	Wayne Disposal
06/09/14	PCB-Contaminated	Soil	27.77	13274704	Wayne Disposal
06/09/14	PCB-Contaminated	Soil	25.67	13274705	Wayne Disposal
06/09/14	PCB-Contaminated	Soil	20.35	13274706	Wayne Disposal
06/09/14	PCB-Contaminated	Soil	23.88	13274846	Wayne Disposal
06/10/14	PCB-Contaminated	Soil	20.92	13274847	Wayne Disposal
06/11/14	PCB-Contaminated	Soil	22.96	13274848	Wayne Disposal
06/11/14	PCB-Contaminated	Soil	21.23	13274849	Wayne Disposal
06/11/14	PCB-Contaminated	Soil	24.75	13274850	Wayne Disposal
06/11/14	PCB-Contaminated	Soil	20.51	13274851	Wayne Disposal
06/11/14	PCB-Contaminated	Soil	24.12	13274852	Wayne Disposal
06/12/14	PCB-Contaminated	Soil	25.91	13274853	Wayne Disposal
06/12/14	PCB-Contaminated	Soil	23.68	13274854	Wayne Disposal
06/12/14	PCB-Contaminated	Soil	25.89	13274855	Wayne Disposal
06/12/14	PCB-Contaminated	Soil	23.88	13274856	Wayne Disposal
06/13/14	PCB-Contaminated	Soil	25.49	13274857	Wayne Disposal
06/13/14	PCB-Contaminated	Soil	23.43	13274858	Wayne Disposal
06/13/14	PCB-Contaminated	Soil	23.42	13274859	Wayne Disposal
06/13/14	PCB-Contaminated	Soil	21.41	13274860	Wayne Disposal
06/13/14	PCB-Contaminated	Soil	22.32	13274861	Wayne Disposal
06/13/14	PCB-Contaminated	Soil	18.9	13274862	Wayne Disposal
06/16/14	PCB-Contaminated	Soil	38.43	13274863	Wayne Disposal
06/17/14	PCB-Contaminated	Soil	31.94	13274864	Wayne Disposal

Table 2
Manifest Tracking Table
St. Clair Shores PCB Drain Removal #2 Site

Date	Waste Stream	Medium	Quantity (tons)	Manifest Number	Disposal
06/17/14	PCB-Contaminated	Soil	29.27	13274865	Wayne Disposal
06/19/14	Non-TSCA - Non-Regulated	Soil	17.95	2608518	Woodland Meadows
06/19/14	Non-TSCA - Non-Regulated	Soil	19.64	2608519	Woodland Meadows
06/19/14	Non-TSCA - Non-Regulated	Soil	20.49	2608520	Woodland Meadows
06/19/14	Non-TSCA - Non-Regulated	Soil	19.65	2608521	Woodland Meadows
06/20/14	Non-TSCA - Non-Regulated	Soil	24.04	2608522	Woodland Meadows
06/20/14	Non-TSCA - Non-Regulated	Soil	21.32	2608523	Woodland Meadows
06/20/14	Non-TSCA - Non-Regulated	Soil	20.2	2608524	Woodland Meadows
06/20/14	Non-TSCA - Non-Regulated	Soil	22.34	2608525	Woodland Meadows
06/20/14	Non-TSCA - Non-Regulated	Soil	26.78	2608526	Woodland Meadows
06/20/14	Non-TSCA - Non-Regulated	Soil	19.95	2608527	Woodland Meadows
06/23/14	Non-TSCA - Non-Regulated	Soil	23.37	2608528	Woodland Meadows
06/23/14	Non-TSCA - Non-Regulated	Soil	18.65	2608529	Woodland Meadows
06/24/14	Non-TSCA - Non-Regulated	Soil	19.66	2608530	Woodland Meadows
06/24/14	Non-TSCA - Non-Regulated	Soil	16.48	2608531	Woodland Meadows
06/24/14	Non-TSCA - Non-Regulated	Soil	22.21	2608532	Woodland Meadows
06/25/14	Non-TSCA - Non-Regulated	Soil	15.9	2608533	Woodland Meadows
06/25/14	Non-TSCA - Non-Regulated	Soil	15.62	2608534	Woodland Meadows
06/25/14	Non-TSCA - Non-Regulated	Soil	18.25	2608535	Woodland Meadows
06/26/14	Non-TSCA - Non-Regulated	Soil	22.83	2608536	Woodland Meadows
06/26/14	Non-TSCA - Non-Regulated	Soil	21.05	2608537	Woodland Meadows
06/27/14	Non-TSCA - Non-Regulated	Soil	9.85	2608538	Woodland Meadows

1087.29 TSCA Total
416.23 Non - TSCA Total
1503.52 Grand Total

Notes:

PCB = Polychlorinated Biphenyls

TSCA = Toxic Substances Control Act



ENCLOSURE C
Photographic Documentation

PHOTOGRAPHIC LOG

St. Clair Shores PCB Drain Removal St. Clair Shores, Macomb County, Michigan

Photograph: 1

Direction: East

Date: 5/29/2014

Photographer:
Lori Kozel

Description:

Excavation along right-of-way at [REDACTED] Harper Ave.



Photograph: 2

Direction: South

Date: 5/30/2014

Photographer:
Lori Kozel

Description:

DataRam 400 and air sampling location.



PHOTOGRAPHIC LOG

St. Clair Shores PCB Drain Removal
St. Clair Shores, Macomb County, Michigan

Photograph: 3

Direction: Southeast

Date: 6/2/2014

Photographer:
Lori Kozel

Description:
Loading out
contaminated soil.



Photograph: 4

Direction: South

Date: 6/2/2014

Photographer:
Lori Kozel

Description:
Excavation activities in
the backyard of [REDACTED]
Lakeland.



PHOTOGRAPHIC LOG

St. Clair Shores PCB Drain Removal
St. Clair Shores, Macomb County, Michigan

Photograph: 5

Direction: East

Date: 6/2/2014

Photographer:
Lori Kozel

Description:
Excavation activities in
the backyard at [REDACTED]
Lakeland.



Photograph: 6

Direction: North west

Date: 6/5/2014

Photographer:
Lori Kozel

Description:
Excavation activities in
the backyard at [REDACTED]
Lakeland.



PHOTOGRAPHIC LOG

St. Clair Shores PCB Drain Removal St. Clair Shores, Macomb County, Michigan

Photograph: 7

Direction: West

Date: 6/9/2014

Photographer:
Lori Kozel

Description:
Remaining stump at
[REDACTED] Lakeland from
tree removal.



Photograph: 8

Direction: Southeast

Date: 6/12/2014

Photographer:
Lori Kozel

Description:
Stumping grinding
activities in Level B.



PHOTOGRAPHIC LOG

St. Clair Shores PCB Drain Removal
St. Clair Shores, Macomb County, Michigan

Photograph: 9

Direction: East

Date: 6/16/2014

Photographer:
Lori Kozel

Description:
Excavation at [REDACTED]
Lakeland where large
tree was removed.



Photograph: 10

Direction: East

Date: 6/30/2014

Photographer:
Lori Kozel

Description:
Compaction of backfill
at [REDACTED] Lakeland.



PHOTOGRAPHIC LOG

St. Clair Shores PCB Drain Removal St. Clair Shores, Macomb County, Michigan

Photograph: 11

Direction: Northwest

Date: 6/30/2014

Photographer:
Lori Kozel

Description:
Backfill activities at
[REDACTED] Harper Ave.



Photograph: 12

Direction: West

Date: 7/9/2014

Photographer:
Lori Kozel

Description:
Final restoration
complete at [REDACTED]
Lakeland.



PHOTOGRAPHIC LOG

St. Clair Shores PCB Drain Removal
St. Clair Shores, Macomb County, Michigan

Photograph: 13

Direction: North

Date: 7/9/2014

Photographer:
Lori Kozel

Description:

Final restoration
complete at [REDACTED]
Lakeland.



Photograph: 14

Direction: Northeast

Date: 7/9/2014

Photographer:
Lori Kozel

Description:

Final restoration
complete at back of
[REDACTED] Harper Ave.





ENCLOSURE D
Verification Report and Analytical Data